1 MARCH 1957

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VERNMENT RESEARCH AND DEVELOPMENT DIGEST VOL. 2, NO. 3

ATOMIC ENERGY

AVIATION

COMMUNICATIONS

CONSTRUCTION

ELECTRONICS

LOGISTICS

MATERIALS

MEDICAL NEWS

ORDNANCE

SHIPS

TRANSPORTATION

This Issue . . .

SPACE--NEXT FRONTIER

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Box 6026
Arlington 6, Virginia

Murray Q. Smith, Editor

Vera Cole, Art Editor

Colonel Joseph H. Kusner, USAF,
Military Consultant

Department Editors

William O. Foss, Harold Helfer,
Venlo Wolfson, Bernard Katz,
Jim Pastorius, Pat Groseclose

DATA provides a rapid information link between industry and government. It is designed to give readers a quick scan of the latest developments in the military services and government agencies on a wide range of topics. Speeches and interviews of special significance are covered and reviewed by DATA.

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Mailing Address: DATA, Box 6026
Arlington 6, Virginia.

Editorial Office: 2600 South Wayne St.,
Suite 1, Arlington 6, Va. Phone Otis 4-8129

Mid-West Sales & Publishing Office: DATA,
Suite 714, 4 South Genesee St., Waukegan,
Illinois. Phone Ontario 2-7398.

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113. SPACE FLIGHT SYMPOSIUM BRINGS OPTIMISM:

The problems of flights to other planets were discussed and defined by leading members of the military, industry and universities at the first Astronautics Symposium sponsored jointly by the Air Force Office of Scientific Research and the Convair Division of General Dynamics, Feb. 18-20.

Leading off the three-day confab held at the El Cortez hotel in San Diego, Major General Joseph T. McNarney, USAF (Ret.), president of Convair, said, "Perhaps we won't solve all the problems of space flight in these next three days, the next three years or the next three decades, but we feel they are solvable."

William H. Dorrance, former Air Force test pilot and now the assistant to the director for scientific research at Convair, presided over a panel discussion on the problems of re-entry.

"When I'm asked what good is space flight," Dorrance said, "I now say that it is good for business. A space vehicle for four passengers flying for the first time to establish a manned earth satellite will require at least 50 advance supply flights. Furthermore, it would cost $350 million over five years of planning and production and would be a job requiring an average of 7000 full-time employees for that period."

Dorrance further stated, "If we send a flight to Mars, it would require 12 times as much money and make 12 times as many new jobs."

Various speakers brought out the fact that the American businessman could and probably would profit considerably from many facets of space explorations. There will be the obvious construction needs for launching sites, the building of the space vehicles, the need for components, the pumping into the economy of new jobs and fields of specialization and the many things of value to be returned to this planet from the explorations of outer space.

Oliver E. Rogers, Chief Engineer of the Utica Bend Corporation, suggested that new fuels might be discovered on other planets. Andrew G. Haley, chairman of the board of the American Rocket Society, mentioned that it might be feasible to accomplish "meteor mining" which meant hunting asteroids, landing on them and mining their almost pure elements, frequently including high quality diamonds. The possibilities of bringing back new plants to improve terrestrial strains, new medicines to fight earth diseases and other information that would be of benefit in everything from weather prediction to providing new worlds of opportunity for some of the overcrowded, poverty ridden peoples of the earth was envisioned. But scientists agreed biggest motivation for the interest was man's natural inquisitiveness. ///DATA/

Gen. Gregory

114. USAF SEEKS SPACE SUPREMACY:

Speaking before the Astronautics Symposium in San Diego, two Air Force generals--one giving a kick-off address and the other speaking at a summary dinner three days later--expressed the same hope from a military standpoint -- space supremacy. The first inferred and the other stated that control of outer space was of the utmost importance to future military planning.

Brigadier General H. F. Gregory, commander of the Air Force Office of Scientific Research stated, "We in the Air Force believe that the future of astronautics holds promise for the development of scientific knowledge which will significantly influence and enhance man's knowledge in all fields of science. As this knowledge expands, new philosophies of air warfare will replace the old, new applications of weapon systems will evolve, and the promise of an ultimate vehicle for the maintenance of world peace through air superiority looms bright upon the horizon of a troubled world. This is our military interest in astronautics."

At the Symposium dinner on Feb. 19, Major General Bernard A. Schriever, the director of the Air Force ICBM project, said that in a matter of decades the critical military battles might be fought not at sea or in the air but in space--making space supremacy a vital matter. The commander of the Western Development Division of ARDC, General Schriever was optimistic about the prospects for space flight. "The same propulsive unit that boosts a heavy nose cone warhead to 25,000 ft/sec (ICBM), could boost a somewhat lighter body to the escape velocity of 35,000 ft/sec or to an orbital path around the earth."

Schriever said that our safety as a nation may depend upon our achieving space superiority.

It might be noted that there has been some debate in the UN for controls against space weapons that might be directed to leave orbits to plunge vertically at earth ground targets.

The Schriever speech went on to tell many of the facets of the big ICBM project. Although the General did not mention when first flight of the vehicle could be expected, a high-ranking Convair spokesman did imply that first flight of the ATLAS, Convair's ICBM, might be ready soon.

DATA has a limited supply of the complete 11-page text of General Schriever's speech available on request at no charge. ///DATA/

115. NRL HAS BOOKLET AVAILABLE ON RESEARCH REACTOR:

Probably the most talked-about nuclear reactor in the country today is the pool-type nuclear reactor installed in the Navy's principal research facility, the Naval Research Laboratory. Here at NRL, main headquarters for the earth satellite Project Vanguard and other top research projects, is a new research reactor being used for various scientific explorations. Now, NRL has completed a new booklet which describes the reactor in detail. The 12-page brochure gives diagrams and photos, explains design and operation, fuel elements and reactor core, shielding and uses of the equipment.

DATA has a limited supply of the NRL booklets available to subscribers on request. ///NRL/

116. AEC ISSUES EFFECTIVE REGULATION ON RADIATION:

AEC issued a regulation, effective Feb.28, establishing standards for the protection of atomic energy workers and the public against radiation hazards arising from activities licensed by the Commission.

Standards are given to industries for the handling of all radioactive materials subject to Commission licensing. Limits are prescribed governing exposure of workers to external radiation, concentrations of radioactive material which may be discharged into air and water and disposal of radioactive wastes.

Prior to the regulation, AEC had set forth some proposed rules but they were not firm laws. Changes since those first proposed rules outlined in 1955 are reflected in the new regulation. Among these it is noted there is a new requirement that exposure be held to 10 times the permissible weekly dose rather than 13 times as provided in the 1955 proposals for quarterly (13-week) dosage. Another change from the original proposals is the increased concern on the hazards of airborne radioactive materials. One other change from the 1955 proposals is that the section entitled "Emergencies" has been eliminated. A new section, "Measures to Be Taken After Excessive Exposures," has been substituted.

In some ways the new regulations are more liberal than the old proposals. For example the ruling on the use of protective masks has been eliminated. AEC believes it desirable to allow flexibility in the procedures now used to give the required protection against airborne radiation.

Regulation available from AEC, Washington 25, D. C. ///AEC/

117. REACTOR VESSEL PLACED IN ARMY PACKAGE POWER UNIT:

A 15-ton cylindrical pressure vessel, which will contain the nuclear fuel in the Army Package Power Reactor, has been delivered and installed at the Corps of Engineers' R&D Laboratories, Ft. Belvoir, Va.

The steel cylinder, four feet in diameter and eight feet long, with a 32-inch housing at its lower end, was lowered 50 feet to its position in the container. The reactor core, containing highly enriched uranium which contains a greater concentration of fissionable uranium-235 than natural uranium, is now being fabricated at the Atomic Energy Commission's National Laboratory, Oak Ridge.

The plant is a prototype of "package" power reactors being developed for use at remote bases to eliminate the need of transporting bulky conventional fuels. All componets of such plants will be transportable by air. ///Ft. Belvoir Corps of Engineers/

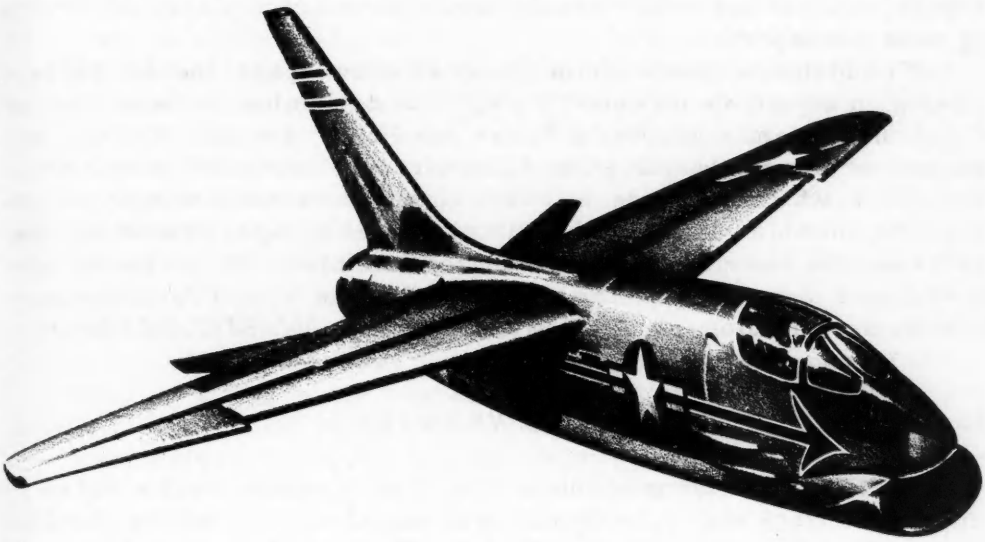
118. AEC ANNOUNCES INCREASED AVAILABILITY OF BORON-10:

Increased quantities of the isotope boron-10 are being made available for sale by the Atomic Energy Commission for use in the civilian atomic energy program. Since boron-10 has the nuclear property of readily absorbing neutrons without itself becoming radioactive, it is particularly suitable for use in nuclear reactor shielding and control mechanisms, and also can be employed in radiation measurement instruments. ///AEC 980 0212/

119. AEC HEAD TELLS MINERS OF NEW MARKETS:

Speaking before the National Western Mining Conference in Denver, Dr. Willard F. Libby, Commissioner AEC, stated that although the past uses of uranium ore have been for military applications mainly, a large new civilian market would soon be realized.

"As yet," Libby said, "the new civilian market scarcely exists, since only the first few purchases have been made. Nevertheless, it should become a real market of increasing importance to both of us. United States reactors now building or for which firm plans exist will have an installed electrical capacity of more than one thousand megawatts by 1962. We expect many other reactors to be proposed so that by 1965 an installed electrical capacity of three or four thousand megawatts in this country seems likely." ///AEC 307 0208/



120. CHANCE VOUGHT F8U CRUSADER SEES FLEET SERVICE:

Navy's fastest fighter, the F8U CRUSADER by Chance Vought, is now in its Fleet Introduction Program. The CRUSADER, depicted above by pilot-artist Lt. Ted Wilbur of the Naval Aviation Safety Center, set a national speed record of 1015.428 mph last fall during the Thompson Trophy speed dash held in conjunction with the National Aircraft Show.

Pilots of Squadrons VF-32 and VX-3 have been flying the F8U. VF-32 is based at Cecil Field, Fla., and VX-3 is at Atlantic City, N. J. Pilot reports from men of these units have been very favorable.

After more evaluation of armament, electronics, carrier suitability and service reliability by pilots of these two units, Chance Vought will make deliveries to other squadrons for regular Fleet service. Regular deliveries are scheduled to begin this month.

///Bureau of Aeronautics/

121. ADJUSTABLE AIRCRAFT COCKPIT:

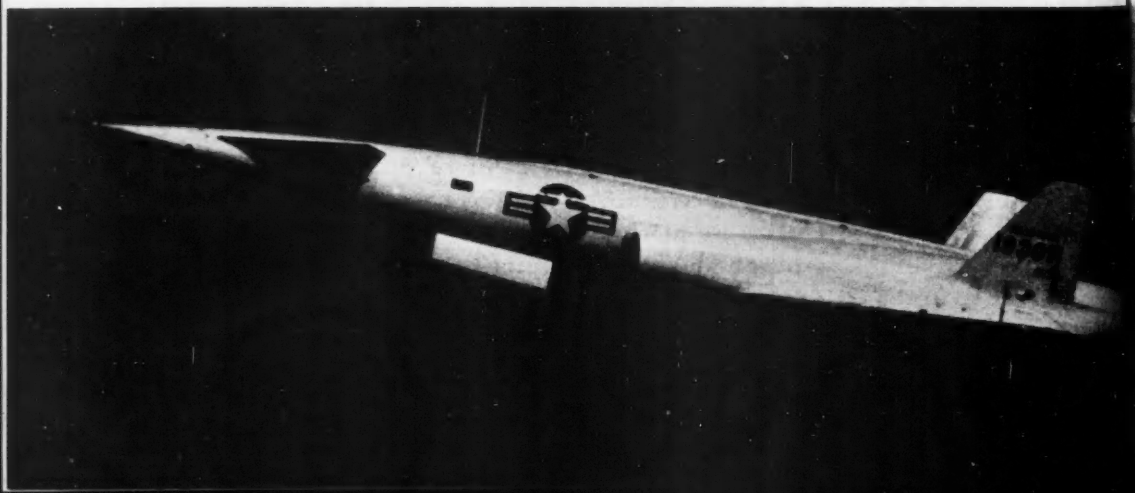
As more and more equipment must find its way into the cockpits of modern high-speed aircraft and designers strive to gain speed by reducing cockpit and total aircraft size, a premium is placed on remaining crew workspace.

To obtain maximum use of the small crew-space, the Air Force is using an adjustable plywood "cockpit" to determine the best location of instruments and controls for future Air Force aircraft. The cockpit consists of plywood boards shaped like aircraft instrument panels and consoles on which full scale drawings of the instrumonts are placed. Attached to movable vertical and horizontal poles grouped around an aircraft seat, the boards can be adjusted for maximum instrument visibility and ease of operation. The unit is used at the Wright Air Development Center in Ohio. ///ARDC 0225 66-57/

122. "ACTOR" TO TRACK TEST VEHICLES:

ACTOR is the name of the new Air Force super-precise radar unit used to track high velocity airborne vehicles. The letters stand for Askania Cine Theodolite Optical Tracking Range, a four station scientific installation to be used at the ARDC center at Rome, N. Y. Special photographs are taken with the unit. ///ARDC 0221 67-57/

123. UNMANNED AIRCRAFT BY NORTH AMERICAN is test vehicle for the Air Force SM-64 NAVAHO ICBM. Dubbed the X-10, the pilotless aircraft has successfully flown hundreds of miles at supersonic speeds while North American missile experts use it to check aerodynamic design as well as guidance and control systems. ///Air Force Info/



124. AIR FORCE REFUTES JET NOISE DEAFNESS REPORTS:

The Air Force claims that figures released from the Veterans Administration concerning the number of veterans who have been made totally deaf by jet noise is misleading. Air Force doctors pulled out their own records showing no significant rise in persons being discharged for hearing disabilities during the past seven years. In that period, only 50 persons were separated from the Air Force primarily for hearing defects. "Unlumping" the VA statistics, the Air Force showed that 87 percent of the veterans receiving service-connected disability compensation for hearing defects were vets from World Wars I and II--before the jet aircraft came into service.

However, the Air Force is still actively engaged in programs to train and warn personnel about hazardous noise exposure. Research is going on both in the Air Force and aviation industry to discover an effective ear-plug or ear-muff device which can filter out some of the jet noise, yet still give the wearer a threshold of audibility. On a note directed to the public, Air Force doctors stated that there is no danger of hearing defects for persons in the vicinity of Air Force installations.

///Air Force Information/

125. LATEST VERSION OF THE INFLATOPLANE, Goodyear's inflatable rubber aircraft is shown below. Originally developed last year for the Office of Naval Research, the plane is made of rubberized fabric held together with nylon threads. It is blown up like a football. Developed to test the rubberized fabric as a structural material, it is powered by a 44 horsepower engine. The INFLATOPLANE has a one-piece wing and simplified controls. Low flying over boys with bee-bee guns is not recommended. ///Navy Information 0218/

126. INTEREST HIGH, ACTION PENDING ON D. C. STADIUM:

Long awaited plans for development of a stadium in the Nation's Capital may be coming to a head. Site investigations have been made. Studies indicate that a fifty to sixty thousand seat stadium is needed by District residents to provide adequate space for major league baseball, professional football, other sports activites, rallies and political conventions.

Formal bids will go out pending results of the stadium competition, date yet to be announced. One large firm, Daniel, Mann, Johnson & Mendenhall, is proposing a unique scheme for a combined sports stadium and convention hall in an unusual geometric shape. The new design is said to have all necessary seating capacity with no blind spots plus have room within the structure for parking 8000 cars.

///DATA/

127. ELECTRONIC CALIBRATION CENTER IN COLORADO:

Construction has begun on an Electronic Calibration Center to be established at the Boulder, Colo., Laboratories of the National Bureau of Standards. Scheduled for completion in 1957 at a total cost of about $2 million, the new center will provide the Bureau with greatly expanded facilities for electrical and electronic calibration services at all frequencies now in general use.

The Calibration Center is being set up in response to the armed services' urgent and continually increasing need for accurately calibrated electronic equipment to be used in radar, aircraft control and missile guidance. ///National Bureau of Standards 2086/

128. ARMY RECOMMENDS RIVER IMPROVEMENT PROJECTS:

The Army has recommended three major river improvement projects.

1. Flood protection works, Mississippi River. St. Paul and South St. Paul. $3,137,800 at St. Paul. $2,567,000 at South St. Paul.

2. Water conservation, flood control storage and facilities for a multiple-purpose reservoir. San Dieguito River, Calif. $1,961,000.

3. Reservoir on the West Branch, Mahoning River, Ohio, for flood control and low-water regulation. $12,585,000.

Projects need Congressional approval. ///Pentagon OPI 0123-29/

129. IBM SATELLITE COMPUTING FACILITY FOR DISTRICT:

Shown above is the proposed design for the International Business Machines Corporation high-speed electronic computing facility which will be built in Washington to calculate and predict the orbit of the scientific earth satellite to be launched during the International Geophysical Year (IGY) by Project Vanguard. The computers in the center will use the information obtained from world-wide tracking stations to calculate a set of constants in order to describe the satellite orbit.

In addition to the new building being constructed for the project, a secondary computing facility will be available and maintained on a standby basis. ///Pentagon OPI & NRL 0225/

130. SPERRY RAND TO BUILD RESEARCH PLANT IN FLORIDA:

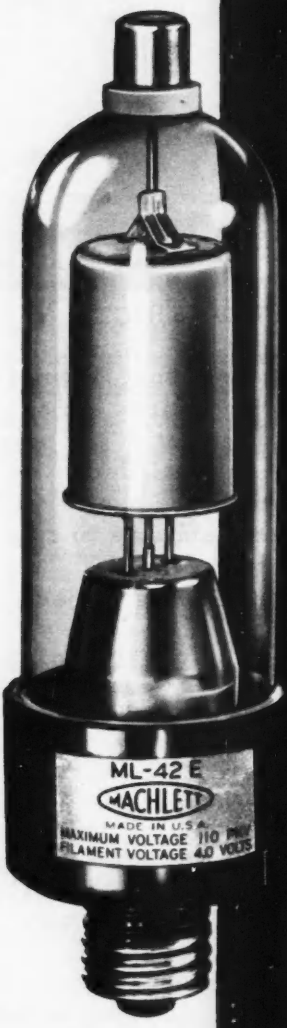
Sperry Rand Corp., creator of the Navy's SPARROW missiles and many other military aircraft and missile systems, will build a new plant one-half mile west of Oldsmar, Fla., near state highway 584. The new research facility will be used for controlling and monitoring aircraft and missile systems and "very advanced weapon systems."

Starting date for construction has not yet been announced.

///Sperry Rand/

131. SEABEES DEVISE NEW CORAL PROCESSOR:

Personnel of Seabee Unit MCB-3 in the Philippines have developed a very effective method of breaking up, processing and compacting large chunks of coral. Nicknamed the "Hondo," the coral processor weighs six and one-half tons and is towed behind a D-7 Caterpillar tractor. The mechanism beats and breaks up the coral chunks, aided by the dead weight of the roller itself. Construction is basically $2\frac{1}{2}$ inch steel dredge pipe with grouser cleats welded on a roller. ///CEC BULLETIN/



NEW ANODE

OLD ANODE

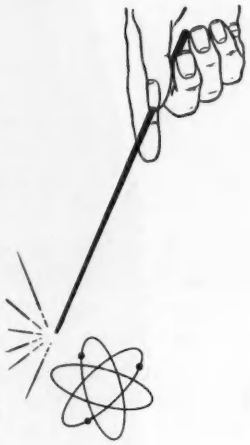
The deep-drawn one-piece molybdenum anode replaces the conventional welded anode.

1907 FANSTEEL 1957 · Golden Anniversary of Progress ·

FANSTEEL

AGIC

depends on METALLURGY



And as the science of metallurgy advances so does the electronic tube.

Take this X-ray valve tube, for example. Moly for a long time was known as the ideal anode material, but it had to be formed and welded as a two-piece construction.

Now because the Fansteel metallurgist puts more ductility and more uniformity into the metal the anode is *deep drawn* with these benefits:

Fewer tube rejects
Easier assembly
Quicker and more thorough outgassing
180° flared edge
Wall and end thickness uniform
No grooves
No welds

Metallurgical *progress* in refractory metals is an established habit at Fansteel. Try us for difficult problems in molybdenum, tungsten, tantalum and high density metals.

The case history repeated here is typical of the news found in Fansteel Metallurgy, a free journal of information. Ask to be put on our mailing list—all we need is your name and business address.

ALLURGICAL CORPORATION,

NORTH CHICAGO, ILLINOIS, U. S. A.

132. COMPUTER TRANSLATES RUSSIAN INTO ENGLISH:

The Department of Defense has manifested interest in an electronic computer that translates Russian scientific fact into English--but skips the Russian fairy tales. Developed at the University of Michigan, the MIDAC...Michigan Digital Automatic Computer...deals strictly with the language of theoretical or experimental physics. One of the things that was especially noted in the experimentations was that the computer wouldn't translate such things as Russian fairy stories. The researchers predict, however, that will be possible eventually.

The magnetic drums of the machine have 64,000 Russian words and their English equivalents on records. As an operator types off a Russian scientific paper, the machine automatically types out the English equivalent. ///Armed Forces Press Serv/

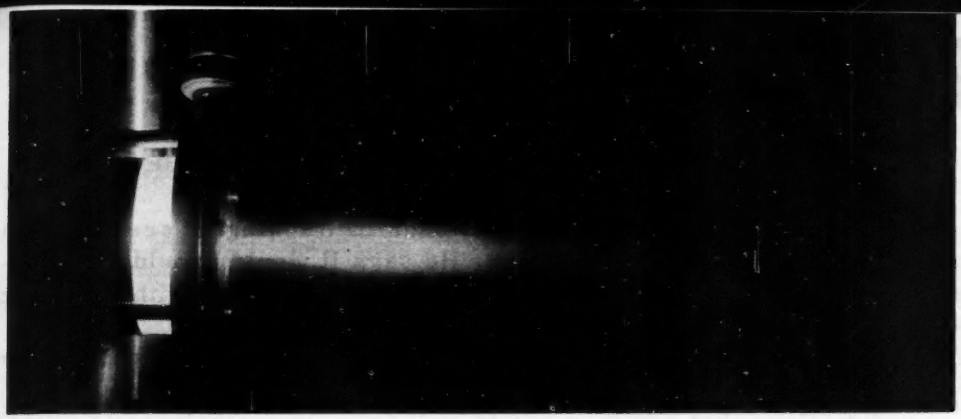
133. TWO MEGAWATT VLF TRANSMITTER FOR NAVY IN EAST:

Construction will begin on the Navy's new two megawatt very low frequency transmitter about 1 June 1957. The transmitter will be located near North Cutler, Me., and will occupy approximately 3000 acres of land. Its function will be to provide communications to submerged submarines and surface units in areas not covered now by this type of communications. An unusual feature of the Bureau of Ships contract stipulates that proof of performance of the antenna ground system will be made by the electronic contractor. ///CEC BULLETIN 02-24/

134. ELECTRONICS SPENDING UP 10 PERCENT IN MILITARY:

Electronics spending in the 1957 military defense picture will be up 10 percent over last year with a total of more than $3.1 billion. Conservative estimates are for a 10 percent increase in military expenditures for each successive year. Total production of all electronic equipment for the first half of 1957 will be about $6 billion according to the Department of Commerce. Fifty cents of every dollar of the $3.1 billion military electronics total will go for missile components. Another 17 percent--a three percent drop from last year--will go for the electronic gear in manned aircraft.

Increases in subcontracting indicate more business for smaller electronics producers. The four-jet delta-winged Convair B-58, for example, has 35 different electronic subcontractors. ///DATA/



135. ELECTRICALLY PRODUCED JET EXCEEDS 10,000° KELVIN:

In a paper given before the Astronautics Symposium in San Diego, Dr. Gabriel M. Giannini of the Giannini Research Laboratory revealed development of a high temperature mixture of gas and electrically charged particles--ions and electrons--which are produced and maintained at temperatures of 10,000 degrees (K). The project is under the sponsorship of the Air Force Office of Scientific Research as part of its study of ionized gases as propellants for space vehicles. Other applications of plasma hi-temp jets in the field of astronautics include hyperthermal wind tunnels and the evaluation of materials at extremely high temperatures.

Although the temperatures of continuous plasma jets are not as high as those reached for small fractions of a second in atomic explosions and certain electrical discharges, they are higher than those produced with any other known continuous process or source, including oxy-acetylene flames, solar furnaces and electrical filaments.

Giannini has received an Air Force contract for research into the feasibility of constructing an electronic accelerator, or Ionic Drive, for propulsion in the near-vacuum of outer space. ///AFOSR/

136. HIGH-SPEED CORE MEMORY FOR DIGITAL COMPUTERS:

Using a selection system system which does not require close control of the characteristics of the magnetic cores, the Air Force has developed a new high-speed core memory for computers. Solution was provided by a series-tube core memory similar in operation to the coincident-current memory and using the same storage element as that system and core-diode memories. The resultant core memory achieves a random access time of two microseconds yet uses fewer tubes than coincident-current memory. It is not amplitude sensitive and does not require matching of cores. For more information write for PB 121558, Series-Tube Core Memory, Department of Commerce. $1.25. ///Com/

137. GOVERNMENT STUDYING MERITS OF FISH FLOUR:

A Monticello, Ill., chemist has been in Washington seeking to interest the government in fish flour. He says it would provide an inexpensive solution to one of the world's feeding problems with the added benefit of high nutrient value.

Ezra Levin, the chemist, says that his process will convert any type of fish, from big sharks to puny ones fishermen generally throw away, into flour that can be made to sell as inexpensively as 12 cents a pound on the American market. Levin, who has been producing this fish flour in his Monticello laboratory, announced in Washington that he is going to build a processing plant in New Bedford and start producing the "flour from the sea" in large quantities.

The Monticello chemist explains that in his process all the fish is used--bones, head, tail--contributing to the inexpensiveness of the product. Tests have shown that Levin's product does have unusually high protein content and will retain its wholesomeness almost indefinitely so that it might be shipped all over the world.

The fish flour has a grayish tinge rather than being pure white. Levin makes two kinds, one that frankly has a fishy taste, for people "...who like fish anyway" and another kind that has been "neutralized". When used with regular flour or other ingredients, such as in soup, etc., the neutral-type flour becomes indistinguishable. ///Cong./

138. U. S. FEDERAL SUPPLY CATALOG MAY BE NATO GUIDE:

The U. S. Federal Supply Classification system is serving as the prototype for a standardization listing of equipment and supplies for the NATO countries. This has come about as a necessity for developing a single cataloging system in the North Atlantic Treaty Organization.

Recently the United States served as host to representatives from NATO members who came to watch the American logistic operation in action. European representatives were guided through Washington governmental bureaus to learn details of the system.

An interesting thing for American businessmen to note in the proposed adoption of the U. S. Federal Supply Classification for European nations is that manufacturers on both sides of the Atlantic would utilize the same basic specifications in supplying parts and equipment, and the NATO stock numbers would become the common language of supply, not only for Mutual Defense Assistance Program materials provided by this country but for materials of European manufacture also. ///BuSandA/

139. WATER SYSTEM FOR EMERGENCY CAN SERVE 50,000:

A fast working "packaged" water plant that can satisfy emergency needs of 50,000 persons has been developed by the Army's Research and Development Laboratories, Ft. Belvoir, Va.

Capable of purifying up to 12,000 gallons of polluted water an hour, the unit can be operated by one man. It turns out fresh water in just 20 minutes, the Army said.

The all-aluminum, 40-foot-square plant is designed for field use. It is expected to be suitable for emergency use at field hospitals, prisoner of war camps and air bases. ///Pentagon OPI 0124/

140. NEW MAGNESIUM ALLOY STRONGER, LIGHTER:

A new magnesium alloy may hold the key for unlocking faster jet aircraft and missiles in the future. After a development period of three years, Dow Chemical is producing the alloy, keyed as HM 21XA-T8, in limited production for the Air Force Air Research and Development Command.

Strength of the new alloy at temperatures of 600 to 700 degrees Fahrenheit is superior to that of the best elevated temperature aluminum or magnesium alloy available today. One hundred hours exposure of the alloy at 700 degrees (F) causes virtually no change in its tensile strength, yield strength and elongation properties. ///ARDC 0128 36/

141. PLANTS GET STOP SIGNAL SCIENTISTS REPORT:

A "stop" light for plants that regulates their growth and development has been discovered by Smithsonian Institution scientists and may be second in importance only to photosynthesis.

A relatively narrow band of light on the edge of the invisible infrared solar spectrum shapes a plant and controls development of stems, leaves and blossoms. According to Dr. R. B. Withrow, one of the discoverers of the phenomenon and head of the Smithsonian's division of radiation and organisms, all life is tied intimately to certain solar wave bands. Photosynthesis, the process by which plants, with energy from sunlight, synthesize carbohydrates from water and carbon dioxide has long been accepted as the cornerstone of all life on earth. But without the other process, controlled by the newly discovered "stop" light, the carbohydrates would be a formless mass. ///Smithsonian Inst./

142. MAN IS STUMBLING BLOCK IN CONQUEST OF SPACE:

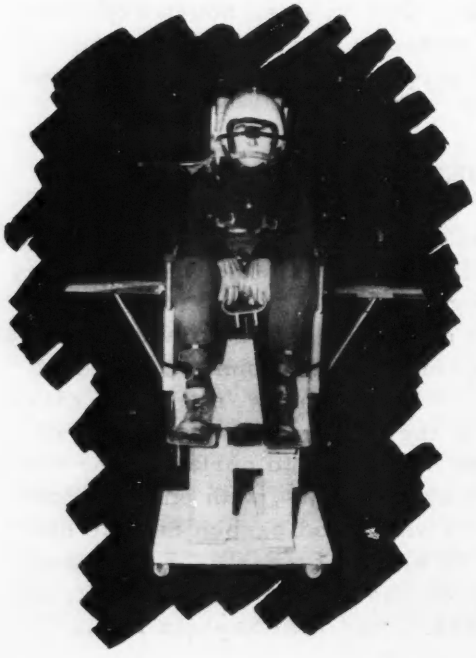
How does a man get rid of his body wastes in outer space? It is really a serious problem when you get him in a vehicle that must be perfectly sealed at all times--and pressurized suits don't help either.

Led by Dr. Hubertus Strughold, chief of the department of space medicine of the Air Force, an eight-man panel of medical experts at the Astronautics Symposium in San Diego discussed the difficulties encountered in keeping a man alive and healthy in an outer space vehicle. Probably more seemingly insolvable problems are encountered in the human factors division of space flight planning than in any other part of outer space programming.

On that problem of human waste removal, the Air Force revealed that it is of vital concern and the Sanitary Commission of the State of New York is now at work on the problem. Colonel Davis of the Office of Scientific Research stated in a press conference following the human factors panel that some method of re-utilization of all products and by-products during space flight was desired.

Appraisal of cosmic ray hazards, fatigue confinement and proficiency decrement, removal of body heat and the selection of crews for high altitude flights were also subjects discussed at the Symposium.

///DATA/



143. FLYABLE EJECTION SEAT is said to be designed for safe escape from combat aircraft traveling more than 1500 miles per hour. Developed by Lockheed for the Air Force, the new system has small wings and tail fins for aerodynamic stability. Built-in parachute is designed to open automatically at a predetermined altitude and airspeed. Key feature of the new system is its air shield, or wind blast deflector--technically called skip flow generator. Simply an eight-inch by five-inch steel plate on the end of a rod, it forces air around the occupant like an auto hood bug deflector. ///ARDC 0218 60-57/

144. HUGE TANK BUILT AT NOL TO TEST MINES:

To test mines and anti-submarine weapons, the Naval Ordnance Laboratory at White Oak, Md., has built a 140-foot building which holds a 50-foot elevator inside a water tank. More than 1.5 million gallons of water are held by the tank which is 107 feet deep. Mines are studied at the same depths they are designed for and may be observed by NOL scientists. Portholes placed around the tank provide vantage points.

The Naval Ordnance Lab studies mines of every type in its White Oak facilities. One of these, according to E. P. Stephens, NOL public information officer, is a mine that can select a certain ship in a convoy for destruction and will only detonate when triggered by that vessel.

///NOL 0225/

145. NAVY AWARDS CONTRACT FOR 20MM PROJECTILES:

The Navy has announced that the Harvey Machine Company of Torrance, Calif., has received a contract for approximately $1,600,000 for 20mm projectiles. The contract covers both armor piercing tracer and armor piercing incendiary projectiles. They are of new design and are used in the latest model 20mm aircraft guns. The 20mm is the primary gun on all naval aircraft. ///Pentagon OPI 0221/

146. DAMAGE POTENTIAL RANGE BEGINS OPERATIONS:

The Air Force has begun testing operations on a new damage potential range at Eglin AFB. Tests conducted will be of three basic types: to gain information on the damage potential of the munition; to determine the functioning of fuses on various missiles; and to gather data in the "crosswinds" ballistic area.

The range incorporates a 2000-foot rocket-propelled sled track which is capable of testing missiles and missile components ranging in size from 20mm cannon to warheads of medium-size guided missiles.

It is expected that speeds of approximately 2600 mph, over Mach three, will be attained on the track. Technicians of the armament center boost the item being tested to high speeds on the sled track before it is actually fired. In that way results obtained are comparable to the firing of the equipment from an actual speeding aircraft.

The damage potential area of testing will probe the destructive power of the ordnance equipment against targets. ///ARDC 0224 65-57/

147. MAMMOTH DRYDOCKS FOR EAST AND WEST COASTS:

Contracts for two huge drydocks will be awarded soon. Design contracts have already been let.

A contract for the design of an 1160-foot drydock, capable of handling the Navy's largest fighting ships including aircraft carriers of the FORRESTAL class has been awarded to Fay, Spofford and Thorndike of Boston. Scheduled to be built on the site now occupied by Drydock No. Three at the South Boston Navy Yard, the new dock will be the largest on the eastern seaboard and one of the three largest in the country. The facility is expected to cost $20 million.

At San Francisco a $1.1 million design and plans contract has been awarded to Indenco Engineers of Oakland and Frederic R. Harris of New York for design of a $50 million repair facility. The west coast drydock will also be capable of handling FORRESTAL class carriers.

///Bureau of Yards and Docks/

148. SEAWOLF MAY GET REACTOR CHANGE:

Difficulties with the atomic submarine SEAWOLF's liquid metallic cooled reactor may cause the Navy to replace it with the more favorable pressurized water reactor used on the NAUTILUS. Rear Admiral A. G. Mumma stated that many of the early problems of the sodium reactor used on the SEAWOLF had been solved but that there are still difficulties and it might be best to change powerplants in the sub.

///Bureau of Ships/

149. NAVY RECALLS MORE TANKERS DUE TO SUEZ BLOCK:

The blocking of the Suez Canal and the worldwide oil shortage led Navy officials and the Military Sea Transport Service to call mothballed tankers back to duty. Some of these ships are now in service with Navy crews and others have been leased to private companies and have civilian crews. Navy officials point out that they were wise in mothballing rather than scrapping the old tankers a few years ago.

The runs between North America and Europe are reminiscent of earlier days during the war when American liberty ships brought help to the needy across the sea. The re-activated tankers are bringing the same help again. This time, however, the main enemy is cold.

///MSTS/

150. THREE BRAKES HALT 1000 MPH SLED:

Just like stopping an automobile traveling 100 mph in two and one-half feet, without demolishing the car--that's what it's like to stop the Air Force rocket sled as it hurtles 1000 mph down the Supersonic Military Air Research Track at Hurricane Mesa, Utah.

Three types of braking are used for the rocket-propelled sleds. After test objects are ejected, retarding rockets fire in the direction opposite the sled's path, to slow it. A scoop beneath the sled picks up water in a trough between the rails, applying water pressure braking power. In addition, a hook can be used under the sled to seize the bridle of a "squeezer piston" brake, exerting the pressure of pistons in three diagonally placed piston tubes on either side of the track.

///ARDC 0216 61/

151. U. S. ARMY TESTS MOBILE VANS FOR MAINTENANCE:

The Army has developed aircraft mobile maintenance shop vans. The Seventh Army is field-testing 14 of them in Germany.

Normally operating as a two-van component, one van contains the tool crib and the metal flaw detection shop and the other carries electric and hydraulic equipment as well as sheet metal and welding tools and machinery.

With sides folded, the vans are of normal size for road space. Expanded for operation in the field, working space is increased threefold and repairs can be made on an assembly-line basis, with no lost steps and motions.

Should the field tests now underway prove as successful as anticipated, these vans will be furnished to Army aviation maintenance units throughout the world. ///Army News 0207/

152. ROADS IN LEBANON GET YANKEE ROCK AND ROLL:

United States economic and technical aid is helping Lebanon modernize its road system. U. S. Operations Mission in Lebanon (Point 4) has allocated $5 million to highway construction. Lebanon will contribute $3,700,000. Two highways will be constructed with the money. The first, nine miles long, will run from Beirut northward across the historic Dog River. The second highway, forty-five miles long, will extend eastward from Beirut to the Syrian frontier. ///USOM/

FOREIGN CORNER

153. PUERTO RICO'S OPERATION BOOTSTRAP:

The self-governing Commonwealth of Puerto Rico will soon establish its first radioisotopic training center at the University of Puerto Rico in San Juan.

This gives an indication of the swift evolution Puerto Rico has made from a one crop sugar economy to one based on modern technology.

Progress since 1941 has been due mainly to a self-help program called Operation Bootstrap. Bootstrap's most important contribution is the development of new industries which have already created 40,000 new direct jobs. The Economic Development Administration of P. R. offers State-side manufacturers tax exemption and other incentives to accelerate industrialization. Result has been a doubling of the Commonwealth's income over the past decade to over a billion dollars and per capita income is currently higher than any other area in Latin America with the exception of oil-rich Venezuela.

The Bootstrap program has spurred the growth of plastics, leather, textiles, chemical and oil refining operations. But of all new Puerto Rican industries, electronics is the fastest growing.

Last year Puerto Rico shipped a record $20 million worth of electronics products to the U. S., including actuators, radar components, light and volt meters, circuit breakers and capacitors. This year, new manufacturers have added magnistors, modules and selenium rectifiers.

If you would like to receive more information on Puerto Rico's incentive plan for businessmen or other general information on Puerto Rico, write Office of Puerto Rico, 2210 R Street NW, Washington 8, D.C.

///Office of the Commonwealth, Puerto Rico/

154. OFFICE OF ASSISTANT SECRETARY FOR R&E CREATED:

Secretary of Defense Wilson has announced the combination of the Offices of Assistant Secretary of Defense for Research and Development and Assistant Secretary of Defense for Engineering into a new office designated as Assistant Secretary of Defense for Research and Engineering.

Assistant Secretary of Defense Frank D. Newbury has been designated to fill this new position and William M. Holaday has been designated as his Deputy.

Wilson pointed out in making this announcement that the revamped organization would not decrease the responsibilities or contributions of the scientists in the overall research and engineering program. The combining of the two units complies with the Hoover Commission and other Committee recommendations and should strengthen our technical efforts. ///Pentagon OPI 0225/

155. RESULTS OF A/C TIME CYCLE PROJECT:

Secretary of Defense Charles E. Wilson has announced first results of a special project which has been underway during the past year by top Defense officials to compress the long time cycle required to conceive, design, test and produce a new military aircraft weapon.

The special project, which has occupied the personal attention of Deputy Secretary Reuben Robertson and the Under Secretaries of the Air Force, Navy and Army as well as the Assistant Secretaries of Defense--Comptroller, Engineering, Research and Development, and Supply and Logistics--has revealed that in some cases up to ten years was sonsumed in putting a new or more powerful air weapon into the hands of the operating forces.

The group attacked problems by identifying and improving the administrative procedures which have been causing waste motion in planning, designing and producing a new aircraft weapon system. Almost every action which this top management team has taken is characterized by the goal of getting faster and firmer decisions through better advance planning, setting dead-lines for accomplishing each major step in the ten-year cycle, and minimizing the complex paper work associated with contracting, financing and other administrative activities.

Basic improvements suggested by the group in the internal management of the Department of Defense are now being followed up in consultation with industry leaders. ///Pentagon OPI 0221/

You can't shrink the pilot

...so *Admiral* shrinks the controls

New transceiver control box reduced to one-fifth former size

The cockpit of a modern fighter plane is packed as tight as a filling in a hollow tooth. As more and more electronic equipment is added to the plane's complement, each new device must fight for space on and behind the instrument panel or console. Now Admiral, maker of the famed AN/ARC27 transceiver, has designed a control box that "moves over" to make room for other needed equipment.

Heart of the new control is an ingenious "mechanical memory" drum that selects any one of 20 preset frequencies with a single knob. Another knob controls three coaxial switches designed by Admiral so the pilot can manually select any of the transceiver's 1750 frequencies. This single compact unit will be universally employed to replace any one of 15 currently used control box combinations. It occupies as little as one-fifth the space and also reduces weight up to 80%.

Here is another instance where Admiral initiated and perfected an important advance in the science of military electronics. Inquiries are invited regarding Admiral's capabilities and production capacity for electronic or electro-mechanical equipment.

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